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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,675

02/13/2004

Toru Katagiri

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

LI, SHI K

ART UNIT

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2613

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/777,675	Applicant(s) KATAGIRI ET AL.	
	Examiner Shi K. Li	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2008 and 08 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-10 and 14-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-10 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 January 2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4, 7-10 and 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation “by multiplying a predetermined negative dispersion value by a transmission distance from the transmitting end station to each of said first optical repeater nodes” in lines 10-12 of the claim. However, instant specification does not teach that the optical repeater nodes “multiply a predetermined negative dispersion value by a transmission distance from the transmitting end station to each of said first optical repeater nodes”. Instead, instant specification teaches on page 22 that it is the amount of the residual dispersion that is set to a value obtained by multiplying a predetermined negative dispersion value by a transmission distance from the transmitting end station to each of said first optical repeater nodes.

Claim 1 recites similar limitation for the second optical repeater in lines 19-20. It is understood that the second optical repeater node does not multiply a predetermined positive dispersion value by a transmission distance from the transmitting end station to said second optical repeater node. Instead, instant specification teaches that the second optical repeater node sets the amount of residual dispersion to a value determined by multiplying a predetermined positive dispersion value by a transmission distance from the transmitting end station to said second optical repeater node.

Claim 7 recites similar limitations. These limitations are interpreted according to instant specification as explained above.

Claim 15 depends on claim 5. However, claim 5 has been cancelled.

Claim 17 depends on claim 11. However, claim 11 has been cancelled.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-2, 4, 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tager et al. (U.S. Patent Application Pub. 2004/0208608 A1).

Regarding claims 1 and 7, Tager et al. discloses in FIG. 15 an optical communication system. Tager et al. teaches in FIG. 6 overcompensation at line sites 118 to obtain a negative dispersion proportional to the distance from the transmitting site 115 to each line sites. Tager et al. teaches in FIG. 6 that the switching sites 117 maintain a positive residual dispersion that is proportional to the distance from the transmitting site 115 to each switching site 117. Tager et

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al. teaches in FIG. 6 that the residual dispersion at the receiving site is D_{reach} . Tager et al. teaches in paragraph [0040] that the positive residual dispersion at the end of each section is

$$D_{sec} = D_{reach} * \frac{L_{sec}}{L_{reach}}.$$

That is, the positive dispersion is determined by multiplying a predetermined dispersion value D_{reach}/L_{reach} by the distance between the transmitting site and the switching site L_{sec} . The minor difference between Tager et al. and the claimed invention, by comparing FIG. 6 of Tager et al. and FIG. 3 of instant specification, is that Tager et al. indicates a negative dispersion at the transmitting site 115. The initial negative dispersion is introduced for allowing a longer distance between the first line site and the transmitting site. One of ordinary skill in the art would have understood that if the distance between the first line site and the transmitting site is within the dispersion limit, the initial negative dispersion can be removed. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the initial negative dispersion in the optical communication system of Tager et al. when the distance between the transmitting site and the first line site is not too long such that the dispersion introduced by the transmission line is within the dispersion limit.

Regarding claims 2, 4, 8 and 10, Tager et al. teaches in paragraph [0029] and [0031] switching node and add/drop node.

6. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tager et al. (U.S. Patent Application Pub. 2004/0208608 A1) in view of Tsuritani et al. (U.S. Patent 6,768,872 B1).

Tager et al. has been discussed above in regard to claims 1-2, 4, 7-8 and 10. The difference between Tager et al. and the claimed invention is that Tager et al. does not teach

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compensating gain deviation. Tsuritani et al. teaches in col. 3, lines 15-21 to equalize optical power and in col. 2, lines 19-21 to compensating dispersion slope so that it becomes practically zero. One of ordinary skill in the art would have been motivated to combine the teaching of Tsuritani et al. with the modified optical communication system of Tager et al. because these compensation ensures that all channels will have the same quality and allows the communication system to reach longer distance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to compensate for gain deviation and dispersion slope, as taught by Tsuritani et al., in the modified optical communication system of Tager et al. because these compensation ensures that all channels will have the same quality and allows the communication system to reach longer distance.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tager et al. (U.S. Patent Application Pub. 2004/0208608 A1) in view of Zhou (U.S. Patent Application Pub. 2003/0219198 A1).

Tager et al. has been discussed above in regard to claims 1-2, 4, 7-8 and 10. The difference between Tager et al. and the claimed invention is that Tager et al. does not teach the bit rates of the wavelength channels. First, it is well known in the art that the bit rate for each wavelength channel is independent of the other wavelength channels. Second, bit rates of 10 Gbps and 40 Gbps are well known in the art. For example, Zhou teaches paragraph [0008] high speed TDM signals of 10 Gb/s, 40 Gb/s and more. One of ordinary skill in the art would have been motivated to combine the teaching of Zhou with the optical communication system of Tager et al. to transmit optical signals of 10 Gbps and 40 Gbps based on traffic need. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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transmit optical signals of 10 Gbps and 40 Gbps, as taught by Zhou, in the optical communication system of Tager et al. due to different traffic needs among the network nodes. The difference in bit rates for different wavelength channels may also due to the fact that certain facilities have been upgraded while the others are still operating at slower bit rates.

Response to Arguments

8. Applicant's arguments filed 17 January 2008 have been fully considered but they are not persuasive.

The Applicant argues that Tager et al. does not teach the newly added limitations of claim

1. The Examiner disagrees. Tager et al. teaches in FIG. 6 overcompensation where each line site introduces overcompensation such that the accumulative dispersion is negative and proportional to the distance between the transmitting site and the line site. Tager et al. also teaches in FIG. 6 that the switching sites 117 compensate dispersion such that the residual dispersion is positive and proportional to the distance between the transmitting site 115 and each switching site.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl
23 April 2008

/Shi K. Li/
Primary Examiner, Art Unit 2613